

First record of the genus *Syritta* Le Peletier & Audinet-Serville, 1828 (Diptera, Syrphidae) from the West Indies

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Abstract

We report the genus *Syritta* Le Peletier & Audinet-Serville, 1828 (Diptera, Syrphidae) from West Indies for the first time. A female of the synanthropic species *Syritta flaviventris* Macquart, 1842 was photographed in the Refugio de Vida Silvestre Río Higuamo, Dominican Republic. This species was introduced in the American continent by human expansion.

Keywords

Dominican Republic, flower fly, hover fly, photographic record, social media, synanthropic.

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Introduction

Commonly known as flower flies or hover flies, members of the family Syrphidae (Insecta, Diptera) are diverse in number (more than 6,200 described species) and larval biology (Rotheray and Gilbert 2011). These conspicuous flies provide important ecosystems services since adults are crucial pollinators of crops and wild plants (Inouye et al. 2015; Rader et al. 2016) and larvae play important roles as biological control agents (Tenhumberg and Poehling 1995; Rojo et al. 2003; Grosskopf 2005) and organic matter recyclers (Lardé 1989; Pérez-Bañón et al. 2013).

The flower fly genus *Syritta* Le Peletier & Audinet-Serville, 1828 (Diptera, Syrphidae, Eristalinae) comprises 61 described species occurring in all biogeographical regions, except both poles, and its highest number of species is found in the Afrotropical Region, with 43 (Lyneborg and Barkemeyer 2005; Van Steenis 2010).

They are small-sized flower flies, usually with a black and yellow-orange to brown coloration, with enlarged hind femora. While adults visit flowers to feed on pollen and nectar (Gilbert 1981), larvae are saprophagous and feed on decaying plant and animal matter (Pérez-Bañón and Marcos-García 2000; Magni et al. 2013).

Two *Syritta* species are present in the Nearctic and the Neotropical Regions, i.e., *S. pipiens* (Linnaeus, 1758) and *S. flaviventris* Macquart, 1842, both introduced as a result of human expansion (Thompson et al. 1990; Lyneborg and Barkemeyer 2005; Skevington et al. 2019). These two synanthropic species can be easily distinguished based on the morphological characteristics provided by Thompson et al. (1990) and Skevington et al. (2019). Pérez-Bañón and Marcos-García (2000) described the larvae of *S. flaviventris* from *Opuntia* Mill.

platyclades and compared them with the larvae of *S. pipiens*. Records of both species are abundant in online databases, such as BugGuide (www.bugguide.net) and iNaturalist (www.inaturalist.org), and field observations in the New World are graphically documented in these databases and incorporated in the Global Biodiversity Information Facility (www.gbif.org).

Despite the available information and different ways of information dissemination, the genus *Syritta* has not been yet recorded from the West Indies (Thompson 1981; Perez-Gelabert 2008, 2020). Here we report the first photographic record of *S. flaviventris* from a Caribbean island, Hispaniola.

Methods

A photograph of a female flower fly (Fig. 1) was taken on 17 February 2013 by the second author in the Refugio de Vida Silvestre Río Higuamo, in the San Pedro Macorís province, located in the south-east of the Dominican Republic around the Higuamo river. The area is part of the Hispaniolan moist forest, a tropical and subtropical moist broadleaf forest ecoregion on the island of Hispaniola (Ecoregions 2017). The photograph was posted on a Facebook group (Insectos Caribeños 2020) and rapidly got the attention of the first author.

SimpleMappr (Shorthouse 2010) was used to create the map. Records (point data) were obtained from GBIF (2020) and published literature (Fluke 1960;

Marnef 1967; Campos and Peña 1973; Thompson et al. 1976; Thompson et al. 1990; Morales and Köhler 2008; Ramírez-García 2010; Eloisa 2014; Sidhu and Biddinger 2014; Flores 2017; Skevington et al. 2019; Montes 2020).

Results

The photographed female was identified as *Syritta flaviventris* Macquart, 1842 (Fig. 1), representing the first record of the genus *Syritta* for the West Indies.

New records. DOMINICAN REPUBLIC • 1 ♀; San Pedro de Macorís, Refugio de Vida Silvestre Río Higuamo; 18.47169°N, 069.32667°W; 4 m a.s.l.; 17 Feb. 2013; photographed by C de Soto Molinari.

Identification. The most obvious diagnostic characteristic of *S. flaviventris* is the wing without spurious vein, but the wing venation is not in focus in the photograph (Fig. 1). Another good characteristic that distinguish *S. flaviventris* from *S. pipiens* is the hind femur with a basoventral tubercle (large in males, smaller in females; absent in *S. pipiens*), but it is also not visible because the picture was taken in dorsal view. Our identification was based on the following morphological characteristics stated by Thompson et al. (1990): face silvery white pruinose, antenna extensively dark, pruinose markings near transverse suture on scutum, fore and mid legs entirely orange, and wing veins orange.



Figure 1. First record of the genus *Syritta* from West Indies. Female of *Syritta flaviventris* photographed in Refugio de Vida Silvestre Río Higuamo, the Dominican Republic.

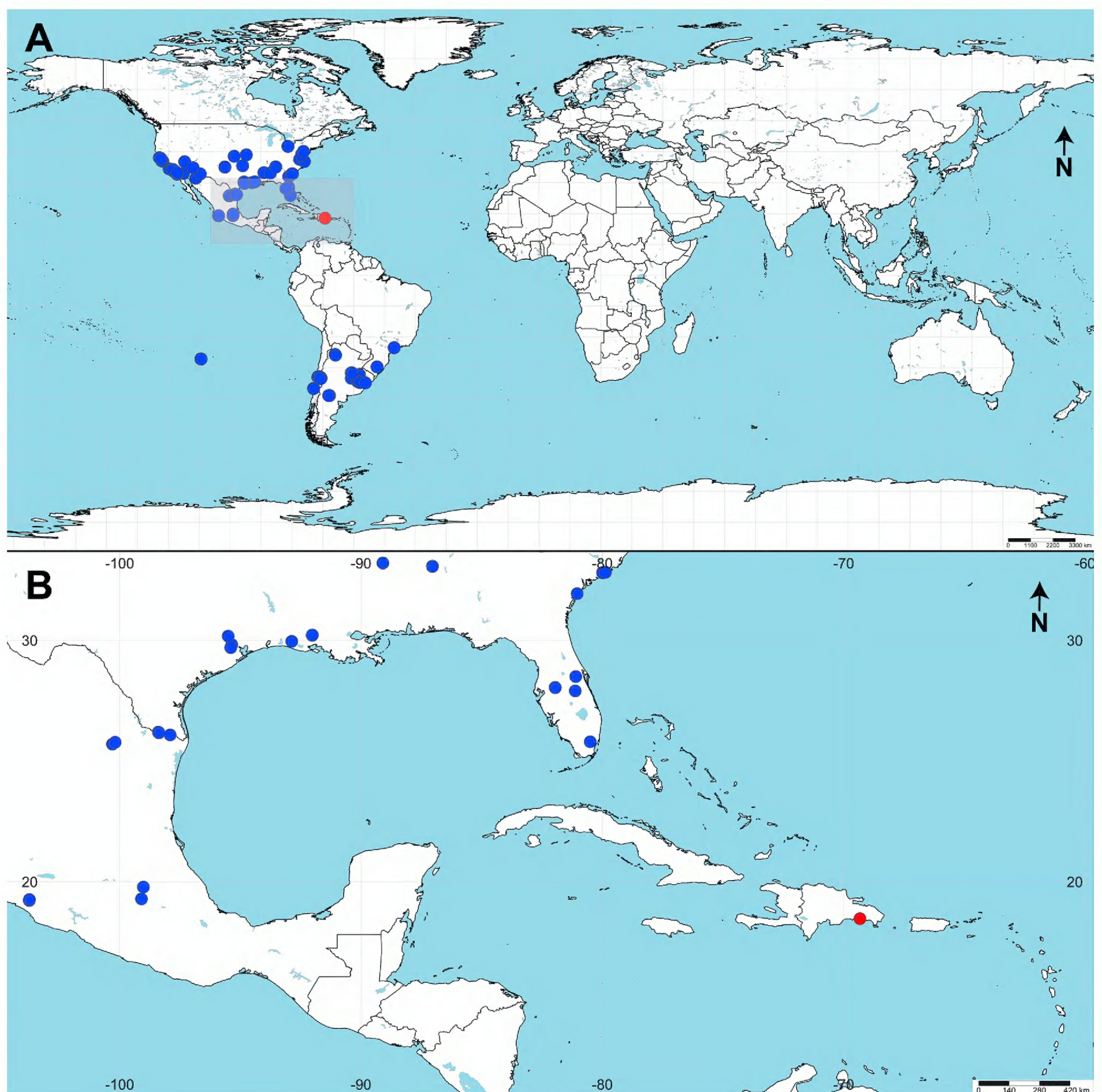


Figure 2. Records of *Syritta flaviventris* in the American continent. Blue circles are records from GBIF and published literature; the red circle is our new record from the Dominican Republic. **A.** Overview of the American continent with the records of *S. flaviventris*; the grey area is enlarged below. **B.** Records in the Caribbean region, between longitudes of 011.5°N and 030.5°N.

Discussion

In the New World, *Syritta flaviventris* has been reported from several states in the United States (Thompson et al. 1990; Sidhu and Biddinger 2014; Skevington et al. 2019; GBIF 2020), Mexico (Colima: Ramírez-García 2010; GBIF 2020; Mexico State: Eloisa 2014; Flores 2017; and Nuevo León: Thompson et al. 1990; GBIF 2020), Brazil (São Paulo: Fluke 1960; Rio Grande do Sul: Morales and Köhler 2008), Uruguay (Montevideo: GBIF 2020), Argentina (Buenos Aires, Santa Fé and Entre Ríos: Thompson et al. 1976; GBIF 2020), and Chile (Valparaíso and Metropolitan region: Marnef 1967, as *Austrosyritta cortesi* Marnef, 1967, junior synonym of *S. flaviventris*; and Biobío: Montes 2020). Campos and Peña (1973) recorded *S. flaviventris* from Easter Island.

Our photographic record represents the first report from the Dominican Republic of this introduced genus (Perez-Gelabert 2008, 2020) and from the whole West Indies (Thompson 1981). Our record is 1,400 km away from the closest known record for this species in Miami-Dade County, Florida, United States (Lisnel 2019) (Fig. 2). Moreover, it is the first record of this genus on an island in the Americas, besides Easter Island in the Pacific Ocean, and points out the survival and establishment capacities of this species in new environments.

This is not the first flower fly report based on a photographic record. Álvarez Fidalgo et al. (2018) reported *Leucozona laternaria* (Müller, 1776) from the Iberian Peninsula based on several photographic records. Online databases and networks, like iNaturalist and BugGuide, images repositories such as Flickr (www.flickr.com), and

social media like Facebook (www.facebook.com), offer new ways of information dissemination and high-quality geographical data for taxonomists. These digital tools can provide new insights on distributional data, first graphical documents of rare species or even be used to describe new species based on images posted in these websites and social media (Winterton et al. 2012; Amézquita et al. 2013; Gonella et al. 2015; Silverman 2016; Winterton 2020). Social media and online networks are growing in importance for citizen science projects (Tiago et al. 2017; Irwin 2018) and biologists should engage, collaborate and benefit from the public with scientific concerns and willing to enact (Chandler et al. 2017; Suprayitno et al. 2017; von Konrat et al. 2018).

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Authors' Contributions

XM identified the specimen and wrote the manuscript, and CdSM photographed the specimen and commented on the manuscript.

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